

### ABSTRACT OF THE DISCLOSURE

A technique for reducing noise in pixel images includes shrinking a first image and a second, related, image, and processing the first shrunken image with a novel segmentation-based filtering technique which utilizes image data from the second shrunken image to help identify structures within the image. After the structures are identified, the first shrunken image is differentially processed to reduce image noise. After processing, the first shrunken image is enlarged to the dimensions of the initial data, subsequently processed if necessary and the final image is displayed or analyzed. The resulting technique is versatile and provides greatly improved computational efficiency while maintaining image quality and robustness.

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